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# FACSIMILE COVER SHEET

Date: November 22, 2006

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| In re application of: Chawla et al. | Attorney Docket No.: CISCP372/7752 | A |
| Application No.: 10/824,181 | Examiner: Baker, S. | E |
| Filed: April 13, 2004 | Group: 2133 | G |

Title: FORWARD ERROR CORRECTION IN PACKET NETWORKS

**FAX # :** (571) 273-8300

Sender: Godfrey K. Kwan

Re: NOTICE OF APPEAL– 2 pages
Pre-appeal Brief- 5

Pages Including Cover Sheet(s): 8

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*IN THE UNITED STATES PATENT AND TRADEMARK OFFICE*

*PATENT*

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CERTIFICATE OF FACSIMILE TRANSMISSION:
I hereby certify that this correspondence is being transmitted by facsimile to the United States Patent and Trademark Office, Commissioner for Patents, Attn: Examiner Baker, Fax No. (571) 273-8300, Alexandria, VA 22313-1450 on: November 22, 2006

Signed: Leslie Russell
Leslie Russell

## PRE-APPEAL BRIEF REQUEST FOR REVIEW

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request. This request is being filed with a Notice of Appeal. I am the attorney or agent acting under 37 CFR 1.34.

Claims 1-28 are pending. Claims 1-8, 10, 11, 13-17 and 23-28 were rejected under 35 U.S.C. § 102(b) as being anticipated by USPN 6,243,846 ("Schuster"). The Examiner rejected Claim 9 under 35 U.S.C. § 103(a) as being unpatentable over Schuster. The Examiner rejected Claims 18-22 under 35 U.S.C § 103(a) as being allegedly unpatentable over Schuster in view of USPN 6,895,019 ("Gibson"). The Examiner also rejected Claims 1-8, 10, 11, 13-17, 24, 25, 27 and 28 under 35 U.S.C 103(a) as being unpatentable over USPN 6,079,042 ("Vaman") in view of USPN 5,642,365 ("Murakami"). Claim 12 has been objected to but would be allowable if amended to include base and intervening claim limitations. The allowability of claim 12 is gratefully acknowledged.

Schuster describes a system "for handling packet loss that may arise in the communication of data or real time media signals, ..." To handle packet loss, the Schuster invention "generates and transmits into the network one or more forward error correction codes, or parity packets, ... a receiving end may extract lost payload from this redundant information ..." (Column 2, Lines 37-43)

Gibson describes "a method and apparatus for transmitting information in a data network from a first node to a second node. At the first (transmitting) node, the information to be transmitted is divided up into a plurality of information packets. Based on the information contained within some or all of the information packets, at least one parity packet (sometimes referred to below as a redundant packet) is generated and is included with the transmission of the information packets. When the packets reach the second (receiving) node, a check is made as to whether any of the packets have been damaged or lost. If either of these things has occurred, the parity packets are used in conjunction with the remaining transmission packets to reconstruct the packets which had been either lost or damaged. If reconstruction is not successful then retransmission occurs in a manner similar to TCP." (Summary)

Vaman describes a method "for recovering lost cells whereby the ATM adaptation layer is capable of selectively implementing an error recovery scheme if required. In this method, the ATM layer may either insert or delete the recovery cells, depending upon the data being transmitted. For example, if voice data is being transmitted, one may choose not to insert the cells since occasional lost cells do not cause significant loss of quality. However, for more sensitive data such as video data, the ATM layer can insert the recovery cells. The present invention also allows for the recovery of lost cells along the network itself without having to wait until the cells reach their destination." (Summary)

Murakami describes "It is a primary object of the present invention to provide an apparatus which can maintain an effective error correcting ability for both random errors and burst errors caused by cell loss, symbol loss or symbol change. Here, transmission of the transmission frame begins before all (L+k) cells are buffered, and the starting time for transmission can be set earlier than conventional systems." (Summary)

However, none of the references cited by the Examiner either alone or in combination teach or suggest "establishing one or more forward error correction tunnels between the encoder and the decoder" as recited in all independent claims 1, 18, 23, and 26. According to various embodiments, the use of FEC tunnels allows network administrators to implement error correction for particularly lossy paths such as between a particular encoder and a particular decoder, as opposed to the entire network. The ability to selectively implement error correction in particular areas of the network, allows more efficient use of network capacity.

Schuster does not teach or suggest establishing any forward error correction tunnels "between and encoder and a decoder." The Examiner argues that "Schuster's RTP protocol is tunneled via TCP/IP." The Applicants respectfully disagree that this teaches or suggests establishing one or more forward error correction tunnels between the encoder and the decoder.

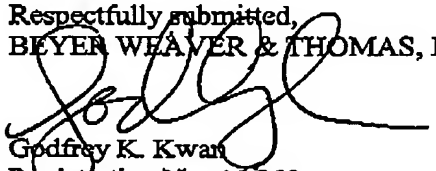
Including RTP in TCP/IP is not establishing any forward error correction tunnel between the encoder and the decoder. Schuster describes RTP in one place. "For instance, the G.723.1 voice coder provides 24 bytes of payload every 30 milliseconds. These 24 bytes are then put into an RTP packet, which in turn is put into a UDP packet, which in turn is put into an IP packet, so that the total packet length is now 24+16+8+20=68 bytes. A parity packet destined for the same receiving end as an adjacent payload block would have a header almost identical to the header of the payload block. Yet the parity packet would still require the fall 44 bytes of overhead, resulting in a waste of bandwidth. As this example illustrates, traditional block coding techniques are therefore not well suited for correcting packet loss in real time media transmissions."

The Examiner also argues that having a header in a packet is establishing a tunnel. As pointed out in Schuster, "because each packet, whether payload or parity, contains its own header, an increase in packet rate consequently increases the burden on network routers and could delay transmission time ..." (Column 4, Lines 19-23). However, putting in address information into a packet header is not establishing a "forward error correction tunnels between the encoder and the decoder."

Nowhere in the Schuster description or in any other known description or RTP is there a suggestion of establishing of a forward error correction tunnel between the encoder and the decoder. Although the other references cited by the Examiner do talk about various error correction mechanisms, none of the other references cited by the Examiner (Vaman, Gibson, or Murakami) is believed to even describe forward error correction tunnels or tunnels in general, not to mention a forward error correction tunnel between the encoder and the decoder.

In light of the above remarks relating to the independent claims, the Applicants believe that all pending claims are allowable in their present form. Please feel free to contact the undersigned at the number provided below if there are any questions, concerns, or remaining issues.

Respectfully submitted,
BEYER WEAVER & THOMAS, LLP



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## INDEPENDENT CLAIMS

1. (Previously Presented) A method for reliably transmitting data in a packet network, the method comprising:

receiving a plurality of data packets at an encoder;

generating error correction information corresponding to the plurality of data packets;

providing a plurality of error correction packets including the error correction information;

transmitting the plurality of data packets and the plurality of error correction packets to a decoder, wherein the decoder uses error correction information to reconstruct one or more data packets if one or more data packets are not received at the decoder.

establishing one or more forward error correction tunnels between the encoder and the decoder.

18. (Previously Presented) A method for receiving data in a packet network, the method comprising:

receiving a plurality of data packets at a decoder network node, the plurality of data packets associated with a block identifier;

receiving a plurality of error correction packets including error correction information corresponding to the block identifier;

reconstructing one or more of the data packets using error correction information if one or more of the data packets has not been received within a set time period.

23. (Previously Presented) An apparatus for reliably transmitting data, the apparatus comprising:

an interface configured to receive a plurality of data packets;

a processor configured to generate error correction information corresponding to the plurality of data packets and provide a plurality of error correction packets including the error correction information;

wherein the interface is further configured to transmit the plurality of data packets and the plurality of error correction packets to a decoder, wherein the decoder uses error correction information to reconstruct one or more data packets if one or more data packets are not received at the decoder;

wherein the interface is configured to establish one or more forward error correction tunnels between the encoder and the decoder.

26. (Currently Amend) An apparatus for reliably transmitting data in a packet network, the apparatus comprising:

means for receiving a plurality of data packets at an encoder;

means for generating error correction information corresponding to the plurality of data packets;

means for providing a plurality of error correction packets including the error correction information;

means for transmitting the plurality of data packets and the plurality of error correction packets to a decoder, wherein the decoder uses error correction information to reconstruct one or more data packets if one or more data packets are not received at the decoder.

means for establishing one or more forward error correction tunnels between the encoder and the decoder.